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TELCORDIA TECHNOLOGIES, INC.
ONE TELCORDIA DRIVE 5G116
PISCATAWAY, NJ 08854-4157

EXAMINER	
NASH, LASHANYA RENEE	
ART UNIT	**PAPER NUMBER**
2153	

DATE MAILED: 10/07/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/909,645	LAU ET AL.	
	Examiner	Art Unit	
	LaShanya R Nash	2153	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 July 2001*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4,7-21* is/are rejected.

7)☒ Claim(s) *5- 6* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claims 1-21 are pending.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 13-14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 13 recites the limitation "the compressed destination address" in lines 4-5. However, there is insufficient antecedent basis for this limitation in the claim. The examiner suggests amending the claim to recite the limitation "the destination address" for proper correction. For the purposes of prior art rejections the claim has been interpreted with the aforementioned limitation.

Claim 14 recites the limitation "compressed source addresses" in line 4. However, there insufficient antecedent basis for this claim. The examiner suggests amending the claim to recite the limitation "source addresses" for proper correction. . For the purposes of prior art rejections the claim has been interpreted with the aforementioned limitation.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-2, 7-10,13-16, and 18-21 are rejected under 35 U.S.C. 102(e) as being anticipated by Copeland, III (US Patent Application Publication 2002/0144156), hereinafter referred to as Copeland.

In reference to claim 1, Copeland discloses a packet identifier method involving assigning data packets to various flows between a source (i.e. client) and destination (i.e. server) within a network (paragraph [0018], line 1 to [0019], line 9 and paragraph [0179], lines 7-8). The collected data for each flow is subsequently analyzed to determine unauthorized network activity (paragraph [0033], lines 1-18). The packet identifier method is disclosed as:

- A method for identifying a flow if data between a source and a destination in a network said method comprising the steps of, (paragraph [0018], lines 1-3;paragraph [0053], lines 1-3; paragraph [0091], lines 1-3; paragraph [0179], lines 7-8;Figure 9A):
    - Identifying a plurality of packets (Figure 1-item 101) at a first point (Figure 1-item 155) and a second point (Figure 2-item 150) in the network, (paragraph [0041], lines 1-14; paragraph 0053], line 1 to

[0054], line 4; paragraph [0057], lines 5-8; paragraph [0059], line 1 to [0061], line 11; and Figure 1-2);

- Comparing a source address of each packet identified at the second point with one or more source addresses of packets identified at the first point (i.e. stored in flow data structure Figure 1-item 162); and if one of the compared source addresses matches, identifying a destination address of the corresponding packet identified at the second point, and associating (i.e. assigning) the identified destination address and the matching source address to a flow between the source and destination (paragraph [0059], line 6 to [0061], line 3; paragraph [0053], line 1 to [0055], line 11; paragraph [0139], lines 1-13; paragraph [0142], lines 1-6; paragraph [0180], line 1 to [0181], line 8).

In reference to claim 2, Copeland discloses the aforementioned packet identifier as:

- A method for identifying a flow if data between a source and a destination in a network said method comprising the steps of, (paragraph [0018], lines 1-3;paragraph [0053], lines 1-3; paragraph [0091], lines 1-3; paragraph [0179], lines 7-8;Figure 9A):
  - Identifying a plurality of packets (Figure 1-item 101) at a first point (Figure 1-item 155) and a second point (Figure 2-item 150) in the

network (Figures 1&2-item 199), (paragraph [0041], lines 1-14; paragraph 0053], line 1 to [0054], line 4; paragraph [0057], lines 5-8; paragraph [0059], line 1 to [0061], line 11; and Figure 1-2);

- Comparing a destination address of each packet identified at the first point with one or more destination addresses of packets identified at the second point; and if one of the compared destination addresses matches, identifying a source address of the corresponding packet identified at the first point (i.e. stored in flow data structure Figure 1-item 162), and associating (i.e. assigning) the identified source address and the matching destination address to a flow between the source and destination. (paragraph [0059], line 6 to [0061], line 3; paragraph [0053], line 1 to [0055], line 11; paragraph [0139], lines 1-13; paragraph [0142], lines 1-6; paragraph [0180], line 1 to [0181], line 8).

In reference to claim 13, Copeland explicitly discloses a system for executing the aforementioned packet identifier method, (paragraph [0173], lines 1-10). Specifically, the system comprises a network monitoring appliance (Figure 2-item 150) that includes a port profiling engine (Figure 1-item 155) located at multiple points in the network (paragraph [0054], lines 1-3 and paragraph [0057], lines 1-8), and a database (Figure 1-item 160) that includes a flow data structure (Figure 1-item 162), (paragraph [0131],

lines 1-6 and paragraph [0137], lines 1-3). The aforementioned system is disclosed by Copeland as:

- A system for identifying a flow of data between a source and a destination in a network comprising, (paragraph [0173], lines 1-10; paragraph [0018], line 1 to [0019], line 9; paragraph [0176], lines 1-3; and paragraph [0179], lines 7-8):
    - A first processor (Figure 2-item 150) that identifies a destination address of one or more packets flowing through a second point in the network and sends the destination addresses to a first point (i.e. via the flow data structure Figure 1-item 162) in the network, (paragraph [0173], lines 1-10;paragraph [0176], lines 1-8; Figure 8-item 850; paragraph [0060], lines 1-3; [0139], lines 1-5; [0137], lines 1-7);
    - A second processor (Figure 1-item 155) that identifies a destination address of a packet flowing through the first point, receives the destination addresses from the first processor (via the flow data structure Figure 1-item 162), and generates flow information based on a comparison between the destination addresses received from the first processor and the destination addresses of the packet identified at the second processor, wherein the flow

information identifies the flow of packets between the first point and the second point, (paragraph [0053], line 1 to paragraph [0055], line 11; paragraph [0139], lines 1-5; paragraph [0142], lines 1-6).

In reference to claim 14, Copeland discloses the aforementioned system as:

- A system for identifying a flow of data between a source and a destination in a network comprising, (paragraph [0173], lines 1-10; paragraph [0018], line 1 to [0019], line 9; paragraph [0176], lines 1-3; and paragraph [0179], lines 7-8):
  - A first processor (Figure 1-item 155) that identifies a source address of one or more packets flowing through a first point in the network, and sends the source addresses to a second point (i.e. via the flow data structure Figure 1-item 162) in the network, (paragraph [0173], lines 1-10;paragraph [0176], lines 1-8; Figure 8-item 850; paragraph [0053], line 1 to paragraph [0055], line 11; paragraph [0139], lines 1-5; paragraph [0137], lines 1-7); and
    - A second processor (Figure 2-item 150) that identifies a source address of a packet flowing through the second point, receives source addresses from the first processor (i.e. via the flow data structure Figure 1-item 162), and

generates flow information based on a comparison between the source addresses received from the first processor and the source address of the packet identified at the second processor, wherein the flow information identifies the flow of packets between the first point and the second point, (paragraph [0060], lines 1-3; paragraph [0139], lines 1-5; paragraph [0142], lines 1-6).

In reference to claim 15, Copeland explicitly discloses a method, specifically a thread identifier method, comprising:

- Receiving a first set of information (i.e. new packet), (paragraph [0180], lines 1-3; paragraph [0139], lines 1-3);
- Receiving a second set of information (i.e. flow data structure information), (paragraph [0181], lines 1-8; paragraph [0139], lines 3-5);
- Generating a match value (i.e. hash value) from the first set of information and the second set of information, (paragraph [181], lines 3-8; paragraph [0139], lines 5-9); and generating a flow entry based upon the match value, (paragraph [0189], lines 1-7; and paragraph [0142], lines 1-5).

In reference to claim 18, Copeland explicitly discloses a method, specifically a packet identifier method, comprising:

Comparing a first destination address (i.e. new packet) with a second destination address (i.e. flow data structure information) to generate a match value (i.e. hash value), (paragraph [0180], lines 1-3; paragraph [0181], lines 1-8); and

Generating a flow entry based upon the match value, (paragraph [0189], lines 1-7).

In reference to claim 20, Copeland discloses a method, specifically a packet identifier method, comprising:

- Comparing a first source address (i.e. new packet) with a second source address (i.e. flow data structure information) to generate a match value (i.e. hash value), (paragraph [0180], lines 1-3; paragraph [0181], lines 1-8); and
- Generating a flow entry based upon the match value, (paragraph [0189], lines 1-7).

In reference to claim 7, Copeland shows the packet identifier method to further comprise generating flow information at the first point (Figure 1-item 155) based on the matched destination address and the identified source address, (paragraph [0053], line1 to [0055], line 11; paragraph [0139], lines 1-5; paragraph [0142], lines 1-6).

In reference to claim 8, Copeland shows the packet identifier method sending the flow information (i.e. via the flow data structure) generated at the first point (Figure 1-item 155) to the second point (Figure 2-item 150), (paragraph [0060], lines 1-3; paragraph [0137], lines 1-16; and Figure 6).

In reference claim 9, Copeland shows the packet identifier method updating the flow information (i.e. via the flow data structure) at the first point (Figure 1-item 155) when a new destination address is identified at the second point, (paragraph [0060], lines 1-3; paragraph [0053], line 1 line 11; paragraph [0139], lines 1-5; paragraph [0142], lines 1-6; paragraph [0179], lines 7-9).

In reference to claim 10, Copeland shows the packet identifier method updating the flow information at the first and second point when a destination address (i.e. flow record) is purged (i.e. cleared) at the second point after a predetermined time-out-period, (paragraph [0157], lines 1-7; paragraph [0160], line 1 to paragraph [0161], line 3).

In reference to claim 16, Copeland shows the packet identifier method wherein: the first set of information (i.e. new packet) comprises a first source address and a first destination address, (paragraph [0041], lines 1-5; Figure item 3-item 310); and the second set of information comprises a second source address and a second destination address, (paragraph [0055], lines 1-11; [0139], lines 1-3; Figure 1-item 162); the match value (i.e. hash value) is based upon the first destination address and the second destination address, (paragraph [0139], lines 1-13); and the flow entry indicates the information is flowing between a first node associated with the first set of information and a second node associated with the second set of information, (paragraph [0018],

lines 1-10; paragraph [0053], line 1 to [0055], line 11; paragraph [0139], lines 1-3; and paragraph [0142], lines 1-6).

In reference to claim 19, Copeland shows the packet identifier method wherein the flow entry indicates that information is flowing between a first node associated with the first destination address and a second node associated with the second destination address, (paragraph [0018], lines 1-10; paragraph [0053], line 1 to [0055], line 11; paragraph [0139], lines 1-3; and paragraph [0142], lines 1-6).

In reference to claim 21, Copeland shows the packet identifier method wherein the flow entry indicates that information is flowing between a first node associated with the first source address and a second node associated with the second source address, (paragraph [0018], lines 1-10; paragraph [0053], line 1 to [0055], line 11; paragraph [0139], lines 1-3; and paragraph [0142], lines 1-6).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 11, 12 and 17 rejected under 35 U.S.C. 103(a) as being unpatentable over Copeland, III as applied to the claims above, and further in view of Vanlint

(US Patent Application Publication 2001/0050903), hereinafter referred to as Vanlint.

In reference to claim 11, Copeland discloses substantial features of the claimed invention. As previously evidenced in reference to claims 1, Copeland discloses a method comprising the steps of: identifying a plurality of packets at a first point and a second point in the network; comparing a destination address of each packet identified at the first point with a destination address of one or more packets identified at the second point; and if one of the compared destination addresses matches, then identifying a source address of the corresponding packet identified at the first point, associating the identified source address and the matching destination address to a flow between the source and destination (see claim 2 rejection). Copeland further discloses TCP/IP packets with an associated time-to-live value in the packet header (Figure 3-item 310). However the reference fails to disclose: determining a direction of a flow of data between a source and a destination in a network; selecting a time-to-live value from the plurality of packets identified at the first point and at least one of the plurality of packets identified at the second point; and comparing the time-to-live value of the packets identified at the first point and the at least one of the plurality of packets identified at the second point corresponding to the flow between the source and the destination to determine the direction of the flow between the source and destination. Nonetheless, these modifications would have been obvious to one of ordinary skill in the art at the time of the invention, as further evidenced by Vanlint.

In an analogous art, Vanlint discloses a method for calculating network latency that involves correlating instances of the same packet in trace files generated at a first network location and a second network location (paragraph [0019], lines 1-7). Vanlint further discloses that the aforementioned correlation comprises determining the transmission direction of the packets by comparing the time-to-live values of the common packet in multiple trace files, (paragraph [0031], line 1 to [0032], line 12; Figure 3-item 62). It would have been obvious to implement these modifications to the packet identifier method as disclosed by Copeland, because one of ordinary skill in the art would have been so motivated to determine the latency associated with an identified flow. As a result, a cause for delay can be determined through improved network performance analysis (Vanlint paragraph [0002], lines 5-18).

In reference to claim 12, Copeland discloses substantial features of the claimed invention. As previously evidenced in reference to claim 1, Copeland discloses a method comprising the steps of: identifying a plurality of packets at a first point and a second point in the network; comparing a source address of each packet identified at the second point with a source address of one or more packets identified at the first point; if one of the compared source addresses matches, then identifying a destination address of the corresponding packet identified at the second point, and associating the identified destination address and the matching source address to a flow between the source and destination, (see claim 1 rejection). Copeland further discloses TCP/IP packets with an associated time-to-live value in the packet header

(Figure 3-item 310). However the reference fails to disclose: determining a direction of a flow of data between a source and a destination in a network; selecting a time-to-live value from the plurality of packets identified at the first point and at least one of the plurality of packets identified at the second point; and comparing the time-to-live value of the packets identified at the first point and the at least one of the plurality of packets identified at the second point corresponding to the flow between the source and the destination to determine the direction of the flow between the source and destination. Nonetheless, these modifications would have been obvious to one of ordinary skill in the art at the time of the invention, as further evidenced by Vanlint.

In an analogous art, Vanlint discloses a method for calculating network latency that involves correlating instances of the same packet in trace files generated at a first network location and a second network location (paragraph [0019], lines 1-7). Vanlint further discloses that the aforementioned correlation comprises determining the transmission direction of the packets by comparing the time-to-live values of the common packet in multiple trace files, (paragraph [0031], line 1 to [0032], line 12; Figure 3-item 62). It would have been obvious to implement these modifications to the packet identifier method as disclosed by Copeland, because one of ordinary skill in the art would have been so motivated to determine the latency associated with an identified flow. As a result, a cause for delay can be determined through improved network performance analysis (Vanlint paragraph [0002], lines 5-18).

In reference to claim 17, although Copeland teaches the first set of information (TCP/IP packet) with an associated time-to-live value in the packet header (Figure 3-item 310), Copeland fails to teach expressly the second set of information comprising a second time-to-live value; the flow entry indicates the direction of information flowing between the first node and the second node, the flow entry based upon the first time-to-live value and the second time-to-live value. Nonetheless, these modifications would have been obvious to one of ordinary skill in the art at the time of the invention, as further evidenced by Vanlint.

In an analogous art, Vanlint discloses a method for calculating network latency that involves correlating instances of the same packet in trace files generated at a first network location and a second network location (paragraph [0019], lines 1-7). Vanlint further discloses that the aforementioned correlation comprises determining the transmission direction of the packets by comparing the time-to-live values of the common packet in multiple trace files, (paragraph [0031], line 1 to [0032], line 12; Figure 3-item 62). It would have been obvious to implement these modifications to the packet identifier method as disclosed by Copeland, because one of ordinary skill in the art would have been so motivated to determine the latency associated with an identified flow. As a result, a cause for delay can be determined through improved network performance analysis (Vanlint paragraph [0002], lines 5-18).

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Copeland, III as applied to claims above, and further in view of Kaku (US Patent 6,279,097), hereinafter referred to as Kaku.

In reference to claim 3, although Copeland discloses the aforementioned packet identifier method comprises identifying a plurality of packets at a second point (Figure 2-item 150) and generating a group (i.e. flow data structure) based on the destination address of each packet identified at the second point, (paragraph [0041], lines 1-14; paragraph [0053], line 1 to [0054], line 4; paragraph [0057], lines 5-8; paragraph [0059], line 1 to [0061], line 11; and Figure 1-2), the reference fails to disclose generating compressed addresses. However, compressing IP addresses were well known in the art at the time of the invention, as further evidenced by Kaku. As a result, this modification to the method disclosed by Copeland would have been obvious to one of ordinary skill in the art at the time of the invention.

In an analogous art, Kaku discloses a method for generating a lookup table that involves receiving an input address and resulting a compressed address, thereby having fewer bits than the original destination address (column 3, lines 1-16 and column 4, lines 25-34). One of ordinary skill in the art would have been so motivated to compress addresses that are stored in flow data structure database, in order to reduce the amount size required (Kaku column 2, lines 18-22).

Claim 4 rejected under 35 U.S.C. 103(a) as being unpatentable over Copeland and Kaku as applied to claims above, and further in view of Satoh et al. (US Patent 6,065,064), hereinafter referred to as Satoh.

In reference to claim 4, the Copeland and Kaku show a method comprising the generating a compressed address group based on destination addresses identified at the second point (Copeland Figure 2-item 150), (Copeland paragraph [0041], lines 1-14; paragraph [0053], line 1 to [0054], line 4; paragraph [0057], lines 5-8; paragraph [0059], line 1 to [0061], line 11; and Figure 1-2; Kaku column 4, lines 25-34). However, the references fail to show identifying network addresses based on the destination addresses identified at the second point, and classifying each identified network address based on a range of bits in the identified network addresses. Nonetheless, these limitations were well known in the art at the time of the invention, as further evidenced by Satoh.

In an analogous art, Satoh shows a method for routing frames within a network that involves identifying (i.e. extracting) network addresses from destination addresses contained in the IP headers, (column 2, lines 34-40). Satoh further shows classifying the identified network addresses based on a range (I.e. number) of bits in the identified network addresses, (column 2, line 49 to column 3, line 10). These modifications to the aforementioned would have been obvious because one of ordinary skill in the art would have been motivated to efficiently determine the network address of a received frame, thereby improving the processing speed, (Satoh column 5, lines 10-22).

Allowable Subject Matter

Claims 5-6 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LaShanya R Nash whose telephone number is (703) 305-8910. The examiner can normally be reached on 9am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenton Burgess can be reached on (703) 305-4792. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

GLENTON B. BURGESS
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100